BSCES NEWS

A MONTHLY PUBLICATION OF THE BOSTON SOCIETY OF CIVIL ENGINEERS SECTION/ASCE

VOL. 39 | NO. 6 | FEBRUARY 2015 EWRI Boston Chapter/Water Infrastructure

UPCOMING EVENTS

ASCE and BSCES Sponsored Seminar *February 19 – 20, 2015*

EWRI Boston Chapter Event *February 19 and March 5, 2015*

BSCES Program Committee Sponsored NHI Training *February 23 – March 6, 2015*

Professional Engineers Refresher Course *February 24 – April 16, 2015*

BSCES YMG Annual Billiards Tournament *February 26, 2015*

Geo-Institute Boston Chapter Event *March 5, 2015*

COPRI Boston Chapter Event *March 11, 2015*

SEI Boston Chapter Webinar *March 17, 2015*

BSCES Program Committee Sponsored NHI Training *March 24 – 26, 2015*

BSCES and MassDOT Sponsored NHI Training *March 31 – April 3, 2015*

2015 John R. Freeman Lecture *April 9, 2015*

BSCES Engineering Management Group Event *April 30, 2015*

Further Details Inside

Massport Prepares for More Super Storms

by Nasser Brahim, Climate Change Professional, Kleinfelder

By the time Winter Storm Juno began bearing down on the Northeast, the Massachusetts Port Authority (Massport) was already well into emergency preparations. Employees had received notifications giving them early leave and sharing tips on protecting their families and homes. Logan Airport had suspended domestic and then international flights. Sleeping cots were readied in the terminals for stranded passengers. Award-winning snow crews prepared to work night and day to keep the runways clear of snow so that flights could resume as early as possible. To the region this was a natural disaster, but Massport had the plan, the people, and the gear in place to deal with it as a matter of course.

Nor'easters and blizzards are no new threat to Massport or the region. Since 2000, Logan Airport has seen over a dozen winter storms drop ten or more inches of snow on its roofs and runways. However, it is no longer just snow falling from the sky, or hurricane force winds whipping across the Harbor that keep Massport's Program Manager for Resiliency, Robbin Peach, up at night – it is the water surging up the coast.

"Climate change, sea level rise, and increased storm intensity (i.e. more wicked weather) are the new normal," says Ms. Peach. "In Boston we have been lucky that none of the last five storms, from Sandy to Juno, have peaked at high tide. If they had, we would have seen substantially more damage to our coastal communities and real estate." Ms. Peach emphasizes that resiliency and sustainability are good long-term business models that enhance Massport's ability to prepare for, respond to, and recover from extreme events like hurricanes and nor'easters. "We can't rely on luck to protect us. We have to be ready for flooding the way we are ready for snow."

In a new era of super storms, Massport has sets its sights on tackling the rising threat of coastal flooding. Motivation includes protecting its infrastructure investments, maintaining its critical role in disaster response and recovery, and sustaining the economic impact that the airport and port bring to the region ($7 billion and $4.6 billion a year, respectively). Massport's leadership hopes that its proactive stance will set an example for public and private actors that are equally essential for the region's resiliency.

Getting ahead of the flooding challenge requires analyzing the threat, designing physical improvements, developing plans and policies, training people, and buying new equipment.

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President's Report

by Ali Touran, PhD, PE, Professor, Department of Civil and Environmental Engineering, Northeastern University

National Engineers Week is February 22–28. Engineers Week is a program of DiscoverE (formerly the National Engineers Week Foundation), a national coalition of engineering and educational societies, corporations and government agencies who are working to ensure a dynamic, diverse, and competent future engineering workforce by increasing the public awareness and interest in engineering and technology careers. Engineers Week is also a reminder for us to celebrate the accomplishments of our beloved profession and to work to create and support a solid workforce for the future. BSCES has always taken this mission seriously. Just look at our various outreach activities involving pre-college students. In fact, on Saturday, February 7, I was one of the judges in this year's Model Bridge Contest at Northeastern University. BSCES is proud to offer this Model Bridge Contest, as it has for the past 21 years. This competition serves the important role of introducing school age students to the world of engineering, providing role models for the students and allowing the students to learn about opportunities that they may not have considered prior to this contest. This competition is provided for students in 12th grade or below from across the Commonwealth. This year's bridges will be built entirely out of the specified chop sticks and glue that is provided or approved by BSCES. This is a fun event that brings together engineers, mentors, students, and parents for an exciting competition.

At the beginning of my term as the president of the BSCES, I outlined my plans for the

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Boston Society of Civil Engineers Section/ASCE
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Massport Prepares for More Super Storms

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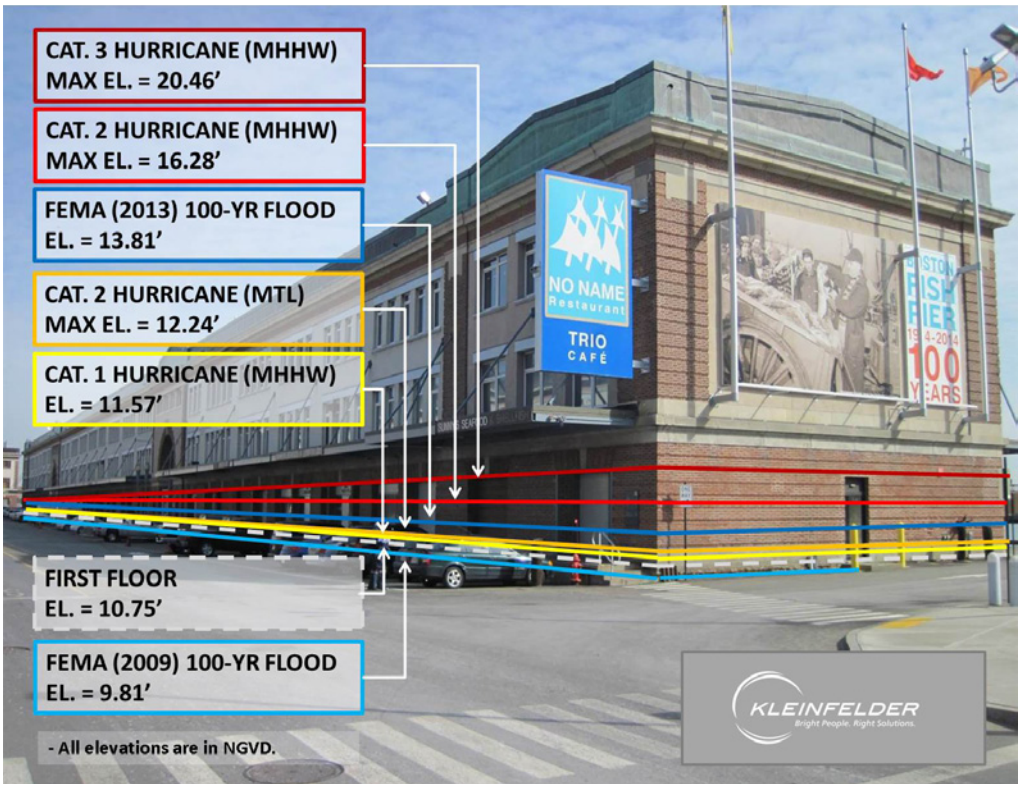


Sea level rise and storm intensification raise flood risk for Massport's historic Fish Pier

But what do you design and plan for? How do you make investment and operational decisions under uncertainty?

Over the past year and a half, Kleinfelder and our team of academic and industry experts worked with Massport to sort through these issues at Logan Airport and Maritime facilities in South Boston. We developed risk scenarios, produced flood exposure maps, identified and assessed the vulnerability of critical infrastructure, and helped prioritize flood resiliency investments based on risk. Flood resiliency design standards developed by our team have been opportunistically incorporated into capital projects for key assets such as container cranes, substations, passenger terminals, and the air traffic control tower. Currently, however, we are embarking on a systematic implementation process to harden existing infrastructure to floods. The process includes elements mentioned above: engineering and architectural design, operational planning, training, and equipment procurement.

This new implementation phase of work will turn floodproofing concepts developed during the previous analysis phase into a reality. The design team will focus on hardening selected buildings and equipment that are at risk of flooding, either through permanent measures like sealing openings and raising equipment, or temporary measures such as installing demountable flood barriers and portable pumping systems.

Prior to procurement, floodproofing products such as temporary barriers will be reviewed and demonstrated to compare performance, insurability, cost, design, footprint and site requirements, safety or code issues, storage, installation labor and time, and maintenance. Once they are procured, they will be incorporated in training and site-level operational plans.

In addition, an operational flood plan will be developed with stakeholders across Massport departments. The plan will ensure that decision makers and operators have clearly defined roles and responsibilities as well as tools they need to carry them out. It will cover a broad range of activities including weather monitoring, notifications, protective actions (e.g., system shutdowns, flood barrier installations, vehicle relocations), damage assessment, and worker and public safety, among others.

These investments will protect the public and Massport employees, prevent the need for long and expensive repairs, preserve key systems needed for disaster response and recovery, and provide Massport with redundancy in the post-disaster period. We are excited to continue our work with Massport to help make Boston stronger and more resilient in 2015 and beyond.

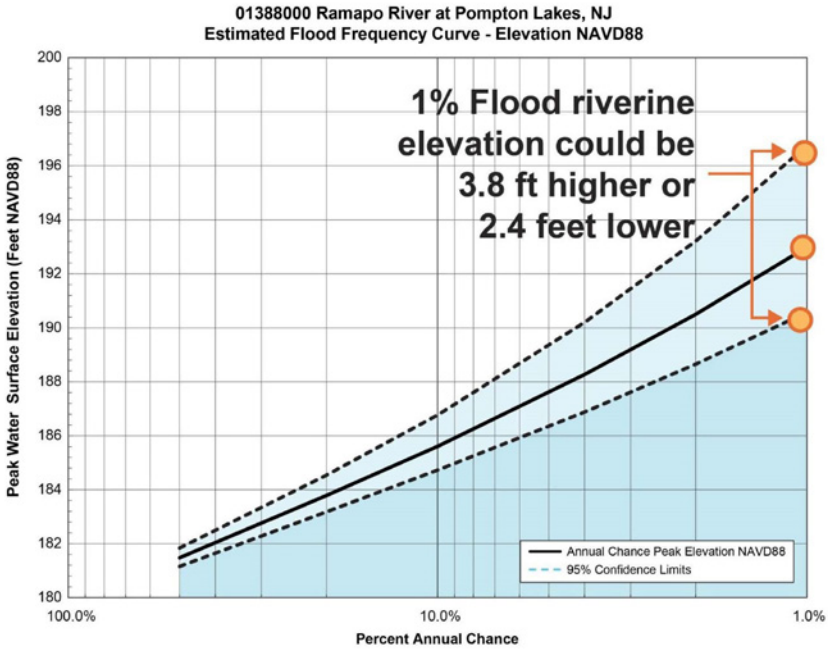
Rebuilding Flood Damaged Communities in the Face of Uncertainty—How High Do We Go?

by Peter A. Richardson, PE, CFM, LEED AP, ENV SP, Vice President, Green International Affiliates, Inc.

This year's BSCES Karl R. Kennison Lecture held on January 8, 2015, entitled R*ebuilding Flood Damaged Communities in the Face of Uncertainty—How High Do We Go?*, was extremely informative and thought provoking, especially when considering how engineers should be designing structures and infrastructure for the next 50 to 100 years. Our featured speaker, Scott Edelman, PE, CFM, Senior Vice President at AECOM, who heads up the firm's global flood mapping and mitigation efforts, explained how the methodologies and approaches that engineers use to design for floods is much different (and much more risky) than all other types of engineering approaches. Mr. Edelman pointed out that engineering equations and methodologies typically have factors of safety built into them. However, when flood maps are developed, which engineers, planners, regulators and property owners all rely on for their work, no such factor of safety exists. Furthermore, the elevations and discharges that are calculated from current methodologies are in many cases closer to a statistical average within a certain confidence interval as opposed to an extreme, worst case scenario that one would expect for design purposes.

Mr. Edelman also explained that flood maps developed by the Federal Emergency Management Agency (FEMA) are based on certain non-conservative assumptions, which are often not the case during actual floods. For example, the hydraulic analyses used in FEMA Flood Insurance Studies assume that hydraulic structures such as dams, levees, bridges and culverts remain free of debris during floods and/or do not fail structurally. Obviously, either scenario (i.e. debris blockages or structural failure) could have a significant impact on flood elevations either upstream or downstream, but current flood mapping methodology has no built-in factor of safety to account for these very likely scenarios.

Statistics show confidence limits to show range of likely results



In addition, while the hydraulic modeling used for flood studies is based on engineering equations that are relatively accurate and have been proven through laboratory testing, the *hydrologic* methods used by FEMA (and design engineers for drainage analyses) are largely based on statistics. In the case of gage stations analyses, the hydrology is completely based on statistics and in the case of rainfall-runoff models, the rainfall input is based on statistical measurements that can be very outdated. Scott pointed out the uncertainty of the statistical methods and how in some cases analyses are performed to predict a 1% chance event (i.e. the 100-year event) based on only 30 years of record data. The results of these analyses have confidence limits that are typically ignored for design purposes.

In one example Scott provided, staying within the 95% confidence limits for the 100-year flood in the Ramapo River in New Jersey, flood elevations could by either 3.8 feet higher or 2.4 feet lower. Imagine how many design decisions and/or permits were based on this calculated elevation, which could be almost 4 feet too low based on statistical error, not to mention the other assumptions mentioned above!

Scott also discussed how great the odds are that a structure located in a floodplain (even the 500 year floodplain) will be flooded during the course of its lifetime, especially residential structures, which tend to be around for over 100 years on average. The odds are far greater that these structures will experience a flood compared to a fire, yet almost every structure has fire insurance, while many that are at risk for flooding do not have flood insurance. Furthermore, he said that projects designed with more freeboard now, will

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USEPA Initiates Demonstration Project to Promote Green Infrastructure

by Bruce Jacobs, PE, and Ken Hickey, Project Manager, HydroAnalysis, Inc.

The United States Environmental Protection Agency (EPA) has allocated technical assistance funds to develop and implement stormwater best management practice (BMP) retrofit designs in Barnstable and Chatham, Massachusetts. The EPA-funded project is part of the newly-launched Southeast New England Coastal Watershed Restoration Program and is a demonstration and education and outreach project designed to promote the use of innovative stormwater BMPs by municipalities on Cape Cod. The project is intended to increase practitioner awareness and acceptance of green infrastructure (GI) as an effective stormwater management approach for treating and controlling nutrient pollution. Nitrogen, the principal nutrient of concern on the Cape, is a significant pollutant contributing to nitrogen impairments in several Cape embayments.

An overriding project goal is to enhance local partnerships under the Clean Water Act section 208 plan update and the implementation of nitrogen TMDLs established for Cape Cod watersheds. EPA anticipates that this project will be a transferable model to help solve water quality problems in developed areas of the Cape Cod and other New England watersheds (e.g., Long Island Sound; Great Bay, NH) and that it will also encourage communities to think about stormwater management and GI as a viable and cost-effective tool to improve water quality, increase recreational opportunities, reduce flooding, and create potential assets and amenities for revitalizing communities and building more livable neighborhoods.

In late summer of 2014, EPA working with the Cape Cod Commission and the MassDEP, solicited proposals for BMP projects from Cape Cod communities that drained to Nantucket Sound. An initial assessment of these BMP project proposals was made by the USEPA. Numerous candidate BMP sites were reviewed and many were deemed infeasible for a variety of reasons including geographical constraints and access limitations. Two locations; one draining to the Hyannis Inner Harbor in Barnstable and a second draining to Oyster Pond in Chatham, were selected for additional investigation. Total Maximum Daily Loads for Nitrogen have been developed or are under development for both of the locus watersheds. In each case, the receiving water bodies have been found to be impaired due to nitrogen discharges, of which substantial components are attributable to stormwater.

EPA's contractors, WaterVision LLC and Comprehensive Environmental Inc. (CEI), are currently in the process of designing and constructing the two demonstration nitrogen-removal stormwater BMP retrofits. Surface and subsurface gravel wetland systems have been selected as the most appropriate stormwater BMP designs to meet project objectives. Gravel wetland systems achieve nitrogen treatment and removal using an initial aerobic stage for nitrification and an anaerobic stage for reduction of nitrogen to elemental nitrogen gas. The UNH Stormwater Center has conducted research on the performance of several gravel wetland system designs. EPA and the WaterVIsion team are coordinating with the UNH Stormwater Center throughout the Cape Cod BMP retrofit design process.

Preliminary conceptual designs have been developed for each of the proposed sites. The drainage area to the Inner Hyannis Harbor site is 8.4 acres. The proposed site itself covers an area of approximately ¼-acre located along a brick path in a relatively congested urban area. The site is notable in the interest expressed by Barnstable officials in accommodating this BMP retrofit and

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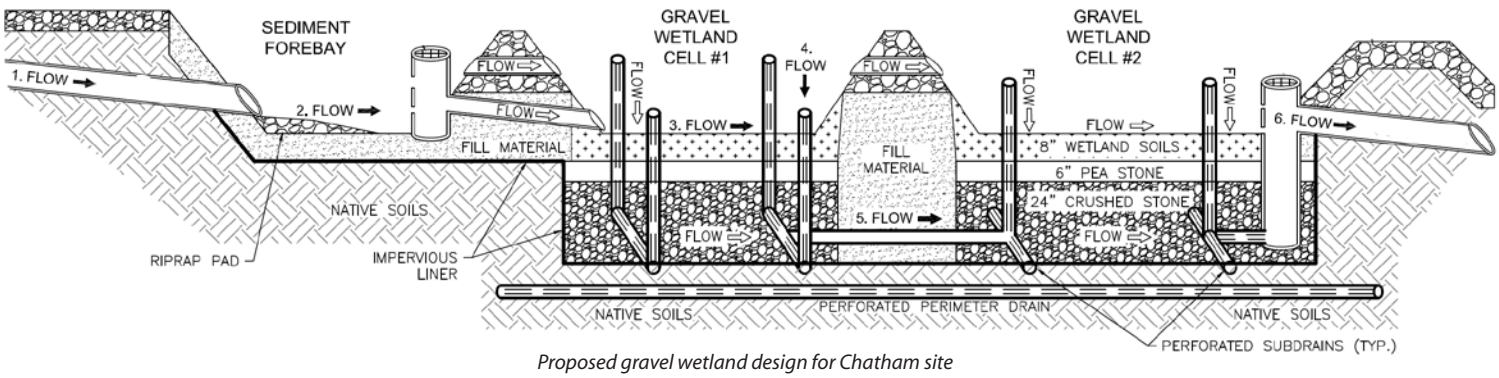
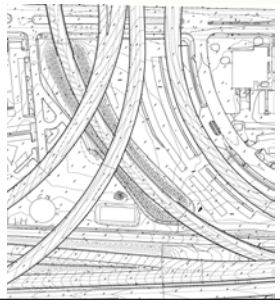


Proposed gravel wetland design for Chatham site



MA DEP Sewer System Regulations and Their Impacts on Municipalities

by David Manugian, PE, Director of Public Works, Town of Ashland

In the spring of 2014 the Massachusetts Department of Environmental Protection (DEP) finalized changes to 314 CMR 12.00, Operation & Maintenance & Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers. These changes apply to a variety of wastewater treatment facilities including private, municipal, and regional ones. Two major changes include completing an infiltration and inflow evaluation for facilities by 2017 and performing daily inspections on pump stations that discharge more than 100,000 gallons per day (GPD).

Infiltration and inflow (I/I) includes water other than wastewater that enters the wastewater collection system and is treated unnecessarily. Infiltration generally includes groundwater leaking in through pipes, pipe joints, and manholes. Inflow generally includes other water sources such as sump pumps, roof leaders, building drains, cross connections between sanitary and storm sewers, storm water, and, alas, leaking drinking water systems.

314 CMR 12.04(2)(c)1 requires that an I/I analysis be completed for any sewer system conveying wastes to a subject treatment facility. The analysis should include an evaluation of the existing condition of the pipes and structures and a recommended plan and schedule for repairing I/I problems. Inspection of pipes and structures often requires a cleaning as well in order to identify leaking areas and get cameras through. A light cleaning of smaller diameter pipes costs on the order of $1 per linear foot of pipe while a heavier cleaning of larger diameter pipes can cost on the order of $4 a linear foot.

Repair costs can vary significantly depending on factors such as the types of repairs to be done, local flow characteristics, and the location of the repairs. Pipe lining costs can range from $40 per linear foot for smaller diameter pipes to $150 per linear foot for larger diameter pipes.

Certain sewer systems identified in 314 CMR 12.04(2)(d), particularly those at risk of wet weather sanitary system overflows (SSOs), are also required to remove four gallons of I/I identified in their analysis for every gallon of additional flow from a new sewer connection or extension with flows exceeding 15,000 GPD.

314 CMR 12.04(5)(a) requires operators of wastewater treatment facilities to perform daily inspections of all pump stations designed to pump peak flows of 100,000 GPD or greater. DEP may allow an alternative inspection schedule if the pump station has a Supervisory Control and Data Acquisition (SCADA) system that provides real-time information on the status of the system. SCADA system development and maintenance costs can easily run on the order of $5,000-$10,000 per year for a pump station subject to this regulation.

Both of these changes will have cost impacts that municipalities will need to address in the near future. Municipal budgets are being prepared now for FY16 (July 1, 2015 – June 30, 2016). If sewer rate increases are being contemplated, the time between the decision and publication of a rate increase and the collection of revenue can be six to nine months depending on how often accounts are read and billed.

Recap of the Eastern Regional Younger Member Council

by TJ Liveston, Engineer II, Hatch Mott MacDonald and BSCES Younger Member Group Chair

The 2015 Eastern Regional Younger Member Council (ERYMC) was held from January 8–10th in Miami, Florida. This event brought together younger members from Regions 1, 2, 4 and 5 to exchange ideas and solutions to run branch Younger Member Groups (YMGs). In addition, two other conferences were held in conjunction with ERYMC: the Workshop for Section and Branch Leaders (WSBL) and Workshop for Student Chapter Leaders (WSCL). These conferences had similar purposes: to share ideas to improve branches/sections and student chapters. Having all three conferences at once allowed attendees to meet more people and be exposed to more ideas, from all levels of ASCE leadership.

Some of the more notable sessions included:

- Regions Breakouts, where the branch/section, YMG and student chapter leadership met to get to know each other and foster communication between different groups in different sections. As a result of this meeting, BSCES YMG will be making an effort to reach out to other regional YMGs once again to make events available to other YMGs and possibly host joint events.
- Society Leaders Q&A, where ASCE national leaders made themselves available for questions from attendees to the conference. They gave insight into the direction of ASCE and the major efforts of the society on a national scale, particularly in encouraging more rigorous continuing education requirements and advocating for the continued funding of national infrastructure, particularly the Highway Trust Fund.
- Leadership and technical seminars, covering a wide range of topics. This included topics such as roundtable discussions on YMG events and activities, how to deal with confrontational leaders, how to understand and work with generational differences, transitioning to management positions, and a technical seminar on the Port of Miami Tunnel.

In addition to these seminars, I ran a breakout session for WSBL on how to better transition student members to become younger members, based on the student outreach methods used by BSCES, especially the YMG.

BSCES

Boston Society of Civil Engineers Section
American Society of Civial Engineers

Orange is the New or the Future of the BSCES Journal

A few enthusiastic engineers are needed, especially younger ones! Here's the "problem." For about the last 30 years, the orange covered publication, "Civil Engineering Practice: Journal of the BSCES," has published peer reviewed papers in traditional paper format. But is this what will serve members best going forward?

Help solve the problem and form the future. What should the content be? Peer reviewed practice-oriented papers only as it has been or something else? In what format(s) should this publication be presented? Paper or web-based? The printed word, audio, video? If you would like to be part of the "solution" click on the following link OrangeWillBe/BSCESJournal, provide your contact information and let's talk.

Featured Group

ASCE Environmental and Water Resources Institute Boston Chapter

by Yan Zhang, PhD, PE, Technical Leader, AECOM, and EWRI Boston Chapter Chair

The mission of the ASCE Environment and Water Resources Institute (EWRI) is to "provide for the technical, educational and professional needs of its members, and to serve the public in the use, conservation, and protection of natural resources and in the enhancement of human well-being." EWRI publishes several ASCE engineering journals (Environmental, Hydraulics, Hydrologic, Irrigation & Drainage, Water Resources Planning and Hazardous, Toxic & Radioactive Waste Management) and holds an annual national conference. Additional information on the national chapter is available at www.asce.org/ewri.

The ASCE Environmental and Water Resources Institute Boston Chapter brings together members from both the public and private sectors to engage in a wide range of water resources and environmental engineering subjects including hydrology and hydraulics, coastal hydrodynamics, stormwater management, flood protection, watershed management, water quality and natural systems, water supply, climate change and sustainable development technology, and best management practice design. Each year, EWRI Boston Chapter organizes lectures, workshops, and field tours in various topics.

In 2014–15, EWRI Boston Chapter has held the following events. On October 28, 2014, we invited Dr. Kimberly Groff to give a presentation titled "Massachusetts TMDL Program, Current Status and Ten-Year Future Vision." Dr. Groff is the director of Watershed Planning Program at Massachusetts Department of Environment Protection. The presentation discussed the status of Total Maximum Daily Loads (TMDL) development in Massachusetts with recent TMDL case studies. Dr. Groff discussed the six elements of a new ten-year future vision and goals approach being designed by state program managers and EPA to advance the effectiveness of the Clean Water Act Section 303(d) Program. The presentation was held at VHB and was attended by over 50 members. On January 8, 2015, EWRI Boston Chapter offered the 2014 Karl R. Kennison Lecture at Revere Hotel. This year's featured speaker was Mr. Scott Edelman, PE, CFM and senior vice president from AECOM. The title of the presentation was "Rebuilding Flood Damaged Communities in the face of Uncertainty—How High do We Go?" Mr. Edelman is an internationally renowned leader in floodplain management. He served as president of the ASFPM Foundation for six years and delivered five expert testimonies to US Congress and United Nations. Mr. Edelman currently serves on the Technical Mapping Advisory Council (TMAC), which was established by Congress and charged with recommending changes to FEMA's Risk MAP Programs. Scott's presentation described knowledge-based flood protection decision making processes that rely on an understanding of natural design elevations, climate-change induced impacts, and public education. (See page 3 for an article on Scott's presentation).

EWRI Boston Chapter is rolling out a two-day workshop on February 19 and March 5, 2015 on "Programming Water Resources Engineering Using Excel VBA." The workshop will be given by Mr. Matt Hodge, PE of Hodge WaterResources, LLC. This workshop is aimed at young professionals who have not had an opportunity to learn computer programming in the past. The workshop will focus on programming skills that are useful to engineers in all fields, but the examples will be taken from the field of water resources. Click here for event registration information. Additionally, in spring of 2015 EWRI Boston Chapter will set up field tours to visit Alden hydrodynamic labs and a project field tour to the Alewife Constructed Wetlands Project in Cambridge, MA.

EWRI Boston Chapter is looking forward to reviewing applications for the 2015 Jonathan B. Golden Fund Scholarship. The Jonathan B. Golden Fund was established in 2002 through donations to honor the memory of Jon Golden, a dedicated wastewater engineer who made significant contributions to the environmental engineering profession. The $5,000 scholarship will be awarded to a graduate student who is pursuing a career in environmental engineering.

EWRI Boston Chapter meets on a bi-monthly basis to discuss industry related topics and coordinate events that are of interest to the engineering community. We strongly encourage you to participate in our planning meetings to make sure that our events reflect your interests. Contact me, Yan Zhang, at Yan.Zhang2@aecom.com or Matt Hodge at Hodge.WaterResources@gmail.com for more information on how to become involved.

Submit an Article to BSCESNews

The BSCES Newsletter Editorial Board invites BSCES members to write and submit an article for publication in *BSCESNews*. Typically 400 to 800 words, *BSCESNews* featured articles are about technical topics or professional matters of interest to civil engineers. The April 2015 issue of the newsletter for example, will highlight the BSCES Younger Member Group and feature one or more articles on the topic of Outreach and Volunteerism.

Email your article in Microsoft Word format to BSCES Newsletter Editorial Board Chair Mike Cunningham at mcunningham@kleinfelder.com or BSCES Association Manager Rich Keenan at rkeenan@engineers.org.

MASSDOT's New Secretary Faces Challenges Down the Road

by Ronald Burns, PE, Principal Engineer CHA Consulting Inc.

The problems with Massachusetts' decaying transportation infrastructure and historic debt issues have been known for a long time. The Patrick administration had worked on making headway in addressing some of the problems by for example; implementing the accelerated bridge program (ABP) that will have repaired or replaced over 200 structurally deficient bridges by 2016, it also helped win the passage of new gas tax increase (the first since 1991) and an unwanted but needed fare increases at the MBTA to help deal with systemic deficit issues. However the next administration still has plenty of challenges ahead. There will still be more than 200 structurally deficient bridges to be repaired when the ABP ends and if maintenance is not kept up with there will be even more. While the gas tax increase was passed the automatic increases to keep up with inflation was defeated in a referendum in November 2014. The loss of indexing is projected to eliminate over $1 billion in potential funding over the next 10 years. Also while the legislature did pass a significant funding bill in 2013 and an associated bond bill in 2014 they are still not sufficient to fully meet the needs outlined in MassDOT's 10 year plan to deal with historic debt issues and to modernize and expand the transit system to meet the states future projected needs.

To meet these challenges Governor Baker has appointed Stephanie Pollack as the new Transportation Secretary. With her decades of experience in the transportation sector, it can be said that if anyone knows what they are getting into, it would be Secretary Pollack. Secretary Pollack has a BS in Mechanical Engineering and BS in Public Policy from MIT and Law Degree from Harvard Law School. She was an attorney at the Conservation Law Foundation (CLF), an environmental advocacy organization, for over 20 years. At CLF she focused on transportation, transit policy and smart growth development. For the last nine years she has been Associate Director of Research at Northeastern University's Dukakis Center for Urban and Regional Policy. Her research has focused on transportation policy, transit oriented and sustainable development. She has also served on numerous boards and committees and worked as consultant to private and public agencies.

Insight into what some of her priorities and focus may be, can be found in some of the research she has authored at NEU Dukakis Center. Of particular note is a record of her testimony to the state legislature's joint committee on transportation in 2013. Her testimony consisted of her top ten list of advice as she said "*…address Masssachusetts longstanding transportation crisis and put the Commonwealth on track to having a 21st century transportation system.*" The following is the list she presented. Copies of the testimony can be found on the web page for the Dukakis Center Transportation Finance papers.

1. Use a portfolio of revenue sources to generate enough funding to address the system's many needs
2. Don't borrow money unless you have funds to pay it back
3. Capital Investment should be designed for leverage
4. Start by fixing the operating side of the budget
5. Empower cities and towns as partners in delivering an integrated transportation system
6. Give transportation agencies tools for improving performance, not just dollars to spend
7. Focus on providing needed capacity, rather than trying to balance maintenance and expansion
8. Don't just maintain transportation assets—modernize them to meet 21st century needs
9. Make sure the transportation system delivers on all of the Commonwealth's policy priorities, including sustainability
10. Make sure the transportation system works for everyone

Many of her top ten list would be consistent with the goals and priorities developed by MASSDOT itself and presented in their 10 year plan entitled The Way Forward: A 21st Century Transportation Plan, Jan 2013. Governor Baker also appears to want to look at planning for the future and chose Secretary Pollack for that reason stating in his press release that *"Stephanie's vast experience in infrastructure and policy development will help our administration to be forward thinking as we look for more innovative ways to meet the transportation needs in every region of the Commonwealth."*

Some of her initial priorities will likely be focused on dealing with getting the operating budget funded by revenue rather than borrowed funds which as she states in her top ten list should be where to "start." This will free up money for more capital projects. Governor Baker has also stated interest in seeing that happen. Along with that she may focus on MBTA's historic debt service issue to bring the MBTA to a more financially sustainable position. She will also need to insure that some of the projects that have already been committed to such as continuation of the road and bridge repair, green line extension, I95 Interchange project and new orange line cars are implemented.

Since funding right now does not fully cover (current budget is for only five years of the 10 year plan), Secretary Pollack and MASSDOT will need to determine which of the many capital projects that were presented in the "The Way Forward" plan get put into the pipeline. A list of those projects can be found in the plan. Also the looming challenge/opportunity of the Olympics in 2024 could play a role. It has been mentioned that the renovation/expansion of South Station is a "must do" project for the Olympics for example.

The commonwealth is facing a budget deficit of $750 plus million which could put a squeeze on the finances of many of the state agencies. This could impact the transportation budget since a considerable amount of the revenue and that was passed by the legislature for transportation is not statutorily protected. Therefore the Governor and legislature could re-allocate that revenue if they think it necessary. Finally, Secretary Pollack may again look at revenue sources (#1 on her Top Ten List). It has been noted that she publicly supported the gas tax indexing as a revenue source while Governor Baker came out against it during the campaign. Governor Baker has also stated that he does not intend to raise any taxes at this time. Working with the governor and the legislature on this funding puzzle maybe an opportunity for Secretary Pollack to be innovative. In her testimony to the Joint Committee the Secretary mentions a "Transportation Revenue Options Handbook" which contains a list of nineteen potential revenue sources. Perhaps, unlike the gas tax indexing, one or more of them will appeal to the legislature, the administration and the general public as an appropriate way to sustainably fund our critical transportation infrastructure.

Recent News and Updates

$5,000 SGH Scholarship Applications Deadline is March 26, 2015
Applications for the 2015 Simpson Gumpertz & Heger Scholarship are now being accepted. All undergraduate civil engineering majors who are: 1) members of an ASCE Student Chapter Club in Massachusetts; 2) have completed a minimum of 2.5 years of a four-year program (or equivalent portion of a five year or part-time program); and 3) expect to complete their undergraduate degree in May 2015 or later; are eligible to apply for this $5,000 scholarship. Applications are due by 5:00 PM on Thursday, March 26, 2015. The winner will be announced during BSCES Student Night 2015, which is being held on Tuesday, April 7, 2015 at UMass Lowell. For additional information see the insert included at the end of this newsletter.

Ernest A. Herzog Award Call for Papers
The ASCE Transportation & Development Institute Boston Chapter wishes to announce that the deadline for submitting a paper for consideration as the winner of the 2015 Ernest A. Herzog Award is Friday May 1, 2015. Established in memory of Ernest Herzog, a nationally recognized civil engineer past BSCES President and ASCE Fellow, this award exists to promote awareness and recognition of innovative improvements to infrastructure.

Award applicants are asked to submit a paper that identifies an infrastructure project, innovation, or idea in which the author was actively involved in as an owner, advocate, engineer, or end-user. The paper must address specific benefits to current professional practices, lifestyle, and/or sustainability through the application of existing or innovative technologies or methods. Areas of application may include design, construction, operation, maintenance, management or financing of infrastructure components or systems.
The award will be presented during the May 19th BSCES Online Bridge Contest Awards Celebration. The recipient will receive a $1,000 award and a memorable plaque. Please see the insert at the end of this newsletter for more information.

Sustainability in Civil Engineering Award Nominations Deadline is May 1, 2015
The BSCES Committee on Sustainability is seeking nominations for the first annual Sustainability in Civil Engineering Award, which will recognize a Massachusetts civil engineering infrastructure project constructed within the last three years that exemplifies the principles of sustainability espoused by the Institute of Sustainable Infrastructure (ISI). Project nominations will be accepted through May 1, 2015. For more information, including submission guidelines and evaluation criteria, please see the insert at the end of this newsletter or the BSCES Sustainability Award Form.

Bertram Berger Young Engineer Award Nominations Deadline is May 1, 2015
Through Friday May 1st, the ASCE Transportation & Development Institute Boston Chapter is accepting nominations for the 2015 Bertram Berger Young Engineer Award, which recognizes an outstanding BSCES younger member for his or her professional achievements and service to the community.
An appropriate nominee is someone who: 1) is less than 35 years old on May 1, 2015; 2) has attained exemplary professional achievements; 3) demonstrated leadership in the practice of civil engineering with emphasis on transportation; 4) enhanced the stature of civil engineers within the community; 5) is an active member of a professional organizations like BSCES; and 6) is a registered, or soon-to-be registered, professional engineer. Please see the insert at the end of this newsletter for more information.

It seems that more and more young engineers are have taken high level leadership roles in our industry. Avery Bang is one of those young leaders. Named the CEO of Bridges to Prosperity (B2P) while still in her 20s, she is an inspirational civil engineering leader. As one of ENR's Top 25 Newsmakers of 2012, Avery was also honored on ENR Mountain Region's Top 20 Under 40 list in 2013, and was selected as one of American Society of Civil Engineers (ASCE) Fresh Faces in 2011, recognizing the top ten Civil Engineers under 30. With a mission to provide "isolated communities with access to essential health care, education and economic opportunities by building footbridges over impassable rivers", B2P has constructed structures all over the world. Under Avery's leadership, they have grown tremendously and were able to construct 29 in 2013 alone! Read more about her accomplishments and view her Tedx Talk at ASCE's blog website.

Become an engineer as opposed to becoming a doctor? Yes, those were the results of a recent Harris Poll. While doctor is considered the most "prestigious" occupation, more individuals would encourage their children to become an engineer over a doctor, 93% vs. 91%. One of the more ironic (and troubling) aspects of the poll is our profession's relatively low prestige ranking—only 69% find engineering prestigious. One may conclude that while we are part of a "solid" profession, it is not a high-status occupation. At BSCES, we try to educate the public and our legislative officials as to the significant contributions that engineers make to the state's quality of life and economic vitality. Our incredible outreach program has been able to educate and inform thousands of students as to what engineers do and how important they are to society. The Government Affairs & Professional Practice Committee works individually and with other professional to help address the legislative and policy issues related to our profession and infrastructure.

BSCES wants to connect with you! As the forms of communication continue to expand, BSCES is trying to keep up with all of the social media outlets. Follow, like, connect, and subscribe to BSCES on Twitter, Facebook, LinkedIn, and YouTube. These sites, in addition to the BSCES homepage, will provide information on upcoming events and highlight BSCES accomplishments.

As a volunteer based organization, BSCES relies heavily on the time, effort, and financial support of individuals and companies within the civil engineering industry. BSCES Executive Director Tony Puntin would like to thank you for your time and dedication. As always, please feel free to contact him at apuntin@engineers.org if you have any thoughts as to how BSCES can better serve you.

Presidents Message

continued from page 1

upcoming term. One of my priorities was to revamp our journal, *Civil Engineering Practice*, to make it a more vibrant publication that is produced in a timely fashion and financially sustainable. Publication of the journal had been falling behind schedule mainly due to lack of sufficient number of high-quality papers. This is turn had created some issues because BSCES was trying to fulfill its obligations towards our subscribers. Because of these concerns, the BSCES Executive Committee voted to suspend publication of the journal starting in 2014 until the issue can be properly studied. I convened a task force consisting of several experienced BSCES members to study the journal's future. The journal taskforce has been meeting monthly since August 2014. The journal's legacy and role, its cost and value to members, and the required effort to revitalize it were all studied carefully. The task force submitted its initial report to the executive committee in December and continues to work on refining the details. The task force reported that our journal is the only known practice-related publication that covers every discipline within civil engineering, which makes BSCES unique from all other sections of ASCE, and strongly supports BSCES' objective of providing an educational resource for our members. It was recommended that the journal be published on a regular, twice per year basis and be provided in a digital format, a change from the historic orange cover paper copy that was mailed to members. Content will continue to be traditional peer-reviewed, practice-orientated articles, but now can also include essays, synopsis and speaker handouts from technical presentations, and other scholarly papers appropriate for publication. This approach is in line with the current trend where professional publications are made available in electronic format rather than the traditional print format. The electronic format will also provide much more flexibility in delivering technical content which might be in the form of PowerPoint presentations, video, or audio. With this approach we will be able to make select presentations from our technical programs available to our membership. In order to achieve the main goal, (i.e., soliciting high-quality contributions from our engineering community), we have started to recruit new members for the editorial board. Please consider supporting this effort by volunteering or nominating an energetic colleague to serve on the editorial board of the new journal. Please respond to our ad in this issue of *BSCESNews*, reproduced in *orange*, and join us create the new era of the *CE Practice*.

The featured BSCES group for this issue of *BSCESNews* is Environmental and Water Resources Institute (EWRI), Boston Chapter. The theme for February issue is Water Infrastructure. I would also like to take this opportunity to thank this issue's corporate sponsor, Kleinfelder, and encourage you to read the page 1 article, which the firm submitted, entitled "Massport Prepares for More Super Storms."

Flood Damaged Communities

continued from page 3

likely see lower insurance premiums in the future (compared to their counterparts that are designed to the minimum level) when new FEMA flood maps are issued, since the new maps show higher flood elevations most of the time.

During the latter part of his talk, Scott discussed Sea Level Rise (SLR) and showed various global scenarios that range from 0.2 meters to 2 meters. Using the higher SLR predictions, the storm surcharges will be extremely large such that a project that is designed for a 1% chance flood today may only provide protection for a 10% flood in the not too distant future.

Mr. Edelman closed his talk with ways that we can break what he called the "ill-logical hydrologic cycle," where society's typical response is **Floods > Panics > Plans > Delays**. This current approach is not sustainable. Scott explained how using concepts like a "Design Flood" (rather than the 100-year flood) that considers the appropriate amount of risk for a particular project would be more sustainable and improve resiliency over current practice. He also cited FEMA's RiskMAP program and new FEMA products that show extended floodplains based on confidence intervals as steps to increase mitigation efforts, which have benefit cost ratios in the range of 5:1 to 7:1 when compared to rebuilding after a disaster. And on his final note, Mr. Edelman stated what we at BSCES have known for a long time that *"many citizens look for leadership from engineers and government."*

The Karl R. Kennison Lecture is funded in part by the Karl R. Kennison Fund, which the BSCES Board of Government created in 1978 to honor the memory of Karl Kennison (1885–1977), a notable hydraulic engineer of the New England tradition. For more than 32 years, Mr. Kennison served as a consultant in Boston and many other municipalities on problems of water supply and sewage. Mr. Kennison was a chief engineer of the predecessor of the Metropolitan District Commission (MDC) and builder of the Quabbin Reservoir. Mr. Kennison was also president of BSCES (1938–1939) and an Honorary Member of the Society.

Green Infrastructure

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the overall excellent public visibility for stormwater education and outreach afforded by its urban setting. The preliminary conceptual design for the site consists of diverting an approximate 0.3 inch water quality volume (WQV) from an existing 24 inch municipal separate storm sewer (MS4) trunk line into two parallel wetland chambers. The first aerobic chamber will be above ground and convey water to the north (away from the MS4 diversion). The second, anaerobic chamber will be below ground and convey water to the south (back to the MS4).

The Oyster Pond, Chatham site is advantageous in being larger than the proposed Barnstable site (18.3 acre drainage area). The preliminary conceptual design at this location is a conventional gravel wetland system. The proposed design which would treat a 0.3 inch WQV incorporates a forebay and two gravel wetland chambers. The first aerobic chamber would receive stormwater proposed to be diverted from an MS4 trunk line in the nearby street. The aerobic chamber would discharge to an anaerobic chamber. The surface gravel wetland BMP would then discharge into a stream that would convey water back to the MS4 for discharge to Oyster Pond via an outfall. Construction is anticipated to proceed in spring/summer of 2015. The project also includes a monitoring program to quantify BMP system performance. Education and outreach components will likely include signage at the site, public events, informational brochures and other technical outreach materials.

Upcoming Events

For more information and to register for events, please visit www.bsces.org

To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, call 617/227-5551.

ASCE and BSCES Sponsored Seminar

Thursday–Friday, February 19–20, 2015
Hyatt Regency Cambridge
575 Memorial Drive, Cambridge, MA
8:30 AM – 4:30 PM

How to Successfully Use Value Engineering on Capital Projects

Don H. Stafford, PE, President and Senior Project Manager, Robinson, Stafford & Rude, Inc.

This seminar is intended to teach project managers, program managers and design project managers how to use Value Engineering (VE) as one of the tools to better manage costs and performance of the projects for which you, as a project or program manager, are responsible. Value Engineering has proven to be a very valuable tool in stretching both capital and operation and maintenance dollars to achieve the required goals for less cost, both in the public and private sector. VE usually results in improvements in facility performance, even at these lesser costs.

Click here for further details including how to register to attend this course and pay by credit card online.

EWRI Boston Chapter Event

Thursday, February 19 and March 5, 2015
Northeastern University
360 Huntington Avenue
10 West Village F, Boston, MA
5:00 PM – 8:00 PM Dinner and Presentation

Workshop: Introduction to Programming Water Resources Engineering (Using Excel VBA)

Part 1: Speaking Programmer Lingo and Using Basic Tools

Part 2: Applications to Water Resources and Building Your Own Tools

Matt Hodge, PE, Hodge WaterResources, LLC

This two-part workshop will focus on programming skills that are useful to engineers in all fields, but the examples will be taken from the field of water resources. The workshop will be an opportunity for attendees to get hands on experience writing code and seeing their programs do work for them.

Please see the Insert at the end of this month's newsletter for further details.

BSCES Program Committee Sponsored NHI Training

Monday, Feb. 23 – Friday, March 6, 2015
Hilton Garden Inn Worcester
35 Major Taylor Blvd, Worcester, MA
8:00 AM – 4:30 PM

FHWA-NHI-130055 Safety Inspection on In-Service Bridges

This two week course is based on the 2012 FHWA "Bridge Inspector's Reference Manual (BIRM)" and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course. This course is not geared towards fracture critical, underwater, or complex structures. All participants must show that they passed either of the following prerequisite Courses FHWA-NHI-130101 Introduction to Safety Inspection of In-Service Bridges, FHWA-NHI 130101a Prerequisite Assessment for Safety Inspection of In-Service Bridges, or FHWA-NHI-130054 Engineering Concepts for Bridge Inspectors.

Please see the Insert at the end of this month's newsletter for further details.

BSCES Program Committee Sponsored Training

Tuesdays and Thursdays
February 24 – April 16, 2015
Tufts University
200 College Street, Medford, MA
7:30 – 9:30 PM except for the initial session which runs from 7:30 – 10:00 PM

Spring 2015 BSCES Professional Engineer Refresher Course

This course will feature 12 sessions covering all aspects of the Professional Engineer State Exam. Taught by leading authorities in their fields, session topics include exam review, hydraulics, hydrology, water supply, transportation, surveying, wastewater, structures, geotechnical, construction management, and economics.

Please see the Insert at the end of this month's newsletter for further details.

Younger Member Group Annual Billiards Tournament and Networking Event

Thursday, February 26, 2015
Boston Beer Works
112 Canal Street, Boston, MA
5:30 PM Registration/ Social
6:00 PM Billards Tournament

Join YMG for our annual billiards tournament at Boston Beer Works. Participants will compete in random teams of two for a grand prize of two pairs of Red Sox tickets for the winning team, plus prizes for 2nd and 3rd place winners.

Please see the Insert at the end of this month's newsletter for further details.

Geo-Institute Boston Chapter Event

Thursday, March 5, 2015
Revere Hotel Boston
200 Stuart Street, Boston, MA
5:30 PM Social/Registration
6:30 PM Dinner and Program

Development of a Versatile, Low-Powered Machine to Excavate Frozen Regolith on the Moon for Civil and Mining Applications

Jamal Rostami, PhD, PE, Centennial Chair of Carrier Development in Mining, Pennsylvania State University

Development of permanent human bases on the Moon requires self-sustaining systems, which entails production and processing of limited amounts of raw material. The most valuable material on the moon is water, which is assumed to be locked in frozen regolith. Any mining and construction activities on the Moon can only be performed by a robust excavation machine that can excavate a variety of material from loose surface regolith to consolidated (frozen) regolith with embedded rocks in the mixture. This presentation discusses the background of excavation activities required for establishing a base on the moon as well as results of a full scale test of a prototype cutterhead for a lunar excavator.

Please see the Insert at the end of this month's newsletter for further details.

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Upcoming Events (continued from page 11)

COPRI Boston Chapter Event

Wednesday, March 11, 2015
The Chateau
404 Providence Highway (Rt 1), Norwood, MA

5:30 PM Registration
6:30 PM Dinner
7:00 PM Presentation

Mooring of Ships to Piers and Wharves ASCE MOP 129

John Gaythwaite, ASCE/COPRI Mooring Analysis Task Committee Chair

Manual of Practice (MOP) 129—Mooring of Ships to Piers and Wharves provides guidelines for the determination of safe mooring design practices for vessels at fixed piers and wharves in ports and harbors. This manual provides the necessary background to assure that designed structures are sound, adequate, and provide a safe berth for the types of vessels to be accommodated. Mr. Gaythwaite will discuss the development of MOP 129 and how the manual is intended to be applied to mooring analysis and safe, efficient, fixed-mooring practice.

Please see the Insert at the end of this month's newsletter for further details.

SEI Boston Chapter Webinar

Tuesday, March 17, 2015
Aldrich Center at TEC
One Walnut Street, Boston, MA

2:30 PM Registration
3:00 PM Webinar

Building Information Modeling (BIM) in Structural Engineering Practice—ASCE Webinar

N. O. Nawari, PhD, PE, Assistant Professor, College of Design, Construction & Planning, University of Florida and Lisa Willard, PE, Vice President, SE Solutions, LLC

The structural engineering profession is standing on the brink of a new technology that will revolutionize the way structures are designed and constructed. Building Information Modeling provides the 3-D objects library of the physical building. This timely webinar will focus on how structural engineers can benefit from this emerging technology.

Please see the Insert at the end of this month's newsletter for further details

BSCES Program Committee Sponsored NHI Training

Tuesday – Thursday, March 24 – 26, 2015
Hilton Garden Inn Worcester
35 Major Taylor Blvd, Worcester, MA

8:00 AM – 4:30 PM

FHWA-NHI-130053 Bridge Inspection Refresher Training

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nation's bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors.

Please see the Insert at the end of this month's newsletter for further details.

BSCES and MassDOT Sponsored NHI Training

Tuesday, March 31 – Friday, April 3, 2015
The Beechwood Hotel
363 Plantation Street, Worcester, MA

8:00 AM – 4:30 PM

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

The course curriculum for this training reflects current practices, while addressing new and emerging technologies available to bridge inspectors. In addition, the course features exemplary training; hands-on workshops for popular types of nondestructive evaluation (NDE) equipment; and a case study of an inspection plan for a fracture critical bridge.

Please see the Insert at the end of this month's newsletter for further details.

Save the Date!

Wednesday, April 1, 2015

Francis M. Keville Annual Dinner

Revere Hotel/Boston Common
200 Stuart Street, Boston, MA

Save the Date and look for future emails about this upcoming Construction Institute Boston Chapter and Transportation & Development Institute Boston Chapter-Sponsored Event.

2015 John R. Freeman Lecture

Sponsored by the John R. Freeman Fund Committee and Environmental & Water Resources Institute Boston Chapter

Thursday, April 9, 2015
MIT's Tang Center (E51)
70 Memorial Drive Cambridge, MA

6:30 PM Dinner
7:30 PM Presentation

Shale Gas Development: A Big Environmental Experiment?

John Cherry, Professor Emeritus, University of Waterloo and Adjunct Professor, University of Guelph

Hydraulic fracturing ('fracking') for shale gas/oil has grown rapidly in the past dozen years in the US and Western Canada. But in many other regions globally, where government and industry would like to see rapid development, public resistance due to concerns about shale gas is restrictive. Recently there has been increased engagement by the scientific community in debating the issues, but without much agreement, supporting claims by some that shale gas development is an immense experiment on the environment. With emphasis on groundwater issues, this lecture examines the nature of the shale gas debate and the claim that shale gas is an environmental experiment.

Please see the Insert at the end of this month's newsletter for further details.

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Mark Your Calendar!

Friday, April 17, 2015

Strike Up a Conversation: Bowling/Network Event

Sponsored by the Construction Institute Boston Chapter

Lanes and Games, Cambridge, MA
6:00 PM Social/Registration
6:30 PM Bowling

Mark your calendar and look for future emails about this upcoming event.

Upcoming Events (continued from page 12)

Engineering Management Group Event

Thursday, April 30, 2015
The Revere Hotel/Boston Common
200 Stuart Street, Boston, MA

5:30 PM Social/Registration; 6:30 PM Dinner
7:00 PM Presentation

Developing a Wynn Win: Onsite Development of the Wynn Everett Resort

Chris Gordon, PE, President, Dirigo Group

The Wynn Everett Resort is the largest private development in Massachusetts history. Come and listen to Chris Gordon of the Dirigo Group discuss the development of the Wynn Everett, including an overview of the $1.8B five star resort, the opportunity to clean up one of the most contaminated sites in the region and insight into the project delivery strategy and schedule.

Please see the Insert at the end of this month's newsletter for further details.

Mark Your Calendar!

Tuesday, April 7, 2015

Student Night 2015

University of Massachusetts Lowell

Mark your calendar and look for future emails about this upcoming BSCES Younger Member Group and Student Affairs Committee sponsored event.

Save the Date!

Tuesday, June 16, 2015

2015 Bertram Berger Seminar
Transportation + Investment = Economic Progress

Keynote Speaker: Mayor Martin J. Walsh, City of Boston (invited)

Save the date and look for future emails about this upcoming Transportation & Development Institute Boston Chapter-Sponsored Event.

BSCES
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American Society of Civil Engineers

EWRI
ENVIRONMENTAL & WATER RESOURCES INSTITUTE
Boston Chapter

Workshop: Introduction to Programming Water Resources Engineering (Using Excel VBA)

Matt Hodge, PE

Hodge WaterResources, LLC

Thursday February 19 & Thursday March 5, 2015

Northeastern University, 360 Huntington Ave, 10 West Village F, Boston, MA
5:00 PM – 8:00 PM Dinner and Presentation

The workshop will focus on programming skills that are useful to engineers in all fields, but the examples will be taken from the field of water resources. The examples will include identifying peak flow in a stream flow record, iteratively solving the Manning's Equation, and processing HEC-RAS model results. The workshop will be an opportunity for attendees to get hands on experience writing code and seeing their programs do work for them. This workshop is aimed at young professionals, although everyone is welcomed, who have not had an opportunity to learn computer programming in the past.

No experience is necessary. The workshop will use Excel Visual Basic for Applications (VBA) to teach a set of generally applicable programming principles. Each attendee will need to bring their own laptop with a working copy of Excel (2007 or later).

Part 1: Speaking Programmer Lingo and Using Basic Tools
Part 2: Applications to Water Resources and Building Your Own Tools

Registration Deadline: Tuesday, February 17, 2015

Registration Fees: $90 Member, $120 Non-Members
$80 Public Sector Member, $110 Public Sector Non-Member
$70 Senior Members (65+) and Students

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/EWRI0219_030515. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after February 17, 2015 and no-shows will be billed.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 4.0 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Program Committee

FHWA-NHI-130055
Safety Inspection of In-Service Bridges

Monday, February 23, 2014 – Friday, March 6, 2014

Hilton Garden Inn Worcester, 35 Major Taylor Boulevard, Worcester, MA
Monday through Friday, 8:00AM – 4:30PM

This two week course is based on the 2012 FHWA "Bridge Inspector's Reference Manual" (BIRM) and provides training on the safety inspection of in-service highway bridges. Satisfactory completion of this course will fulfill the training requirements of the National Bridge Inspection Standards (NBIS) for a comprehensive training course. This course is not geared towards fracture critical, underwater, or complex structures. Mid-term and final examinations based on course content will be administered to participants.

Please note: To take this course participants must show that they have passed one of the following pre-requisite courses: FHWA-NHI-130101, *Introduction to Safety Inspection of In-Service Bridges*; FHWA-NHI-130101a, *Prerequisite Assessment for Safety Inspection of In-Service Bridges*; FHWA-NHI-130054 or *Engineering Concepts for Bridge Inspector*. A FHWA/NHI certification of completion with the participant name on it will be required to be presented to BSCES preferably at time of registration or no later than Monday, January 19, 2015. Please forward your prerequisite certificate in the form of a PDF document to bsces@engineers.org. Please visit the NHI website at www.nhi.fhwa.dot.gov or contact them at 703/235-0500 for additional information on the prerequisite course requirements.

Registration Deadline: Wednesday, February 18, 2015

Registration Fees: $2,700 Members, $3,200 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: Attendance for this program is limited to 30 participants. Individuals who attempt to register after the course is closed will be added to a waiting list. Registrations will be accepted on a first-come first-served paid basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/NHISafetyInpsection022315. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. There are no refunds for no shows or for registrants who cancel after January 26, 2015 including those that do so due to failure to take one of the prerequisite courses.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 6.7 Continuing Education Units (CEU)

Supported by the staff of The Engineering Center Education Trust

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Professional Engineer Refresher Course

Spring 2015 Schedule

Course lectures will be held at Tufts University in Medford, MA. All lectures are presently scheduled for Tuesday and Thursday evenings from 7:30-9:30 PM except for the initial session which runs from 7:30-10:00 PM. Due to changes in instructor availability or inclement weather it may be necessary to schedule make-up sessions on prearranged "Open" dates, which include Tuesday, March, 17 & April 14 and Thursday, April 9 & April 16.

Class	Day	Date	Time	Subject	Instructor	Phone
1	Tuesday	02-24	7:30-10:00 PM	Hydraulics & Exam Review	Willard Murray	978/944-1778
2	Thursday	02-26	7:30-9:30 PM	Hydrology	Willard Murray	978/944-1778
3	Tuesday	03-03	7:30-9:30 PM	Water Supply	Bruce Jacobs	617/879-0253
4	Thursday	03-05	7:30-9:30 PM	Transportation	Rick Bryant	802/864-0223
5	Tuesday	03-10	7:30-9:30 PM	Surveying	Dana Standley	508/792-4500
6	Thursday	03-12	7:30-9:30 PM	Wastewater	Annalisa Onnis-Hayden	617/373-2005
7	Tuesday	03-17	7:30-9:30 PM	Open		
8	Thursday	03-19	7:30-9:30 PM	Structures	Brian Brenner	781/221-1147
9	Tuesday	03-24	7:30-9:30 PM	Geotechnical	Jim Lambrechts	617-989-4986
10	Thursday	03-26	7:30-9:30 PM	Structures	Brian Brenner	781/221-1147
11	Tuesday	03-31	7:30-9:30 PM	Geotechnical	Jim Lambrechts	617/989-4986
12	Thursday	04-02	7:30-9:30 PM	Construction Management	Cristina Cosma	617/989-4464
13	Tuesday	04-07	7:30-9:30 PM	Economics	Richard Pike	978/325-2371
14	Thursday	04-09	7:30-9:30 PM	Open		
15	Tuesday	04-14	7:30-9:30 PM	Open		
16	Thursday	04-16	7:30-9:30 PM	Open		
17	Friday	04-17	8:00 AM – 5:00 PM	**State Exam**		

Registration deadline is Thursday, February 19, 2015. You may register for this program and pay by credit card online at http://bit.ly/BSCES_PE_REF_Spring15. BSCES members have been assigned a username and password which they must use to register online at the member rate. Call 617/227-5551 if you do not know your username or password. You may also register by completing and returning this registration form and including payment by check (made payable to BSCES) or credit card. Mail your completed registration and payment to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616. Email or fax your registration to bscesreg@engineers.org or 617/227-6783, respectively. If you register in this manner and are paying by check, you must also mail a copy of this form with your payment. **No phone reservations will be accepted.** Registrations canceled after Thursday, February 19, 2015 will be charged the full program registration fee. For more information call 617/227-5551.

Registration Fees: (Please check the box to the left of the appropriate per person registration fee below):

☐ $525 BSCES Member Rate ☐ $610 Non-Member Rate ☐ $525 Quantity Discount Rate*

Name: _____ Day Phone/Fax: _____

Organization: _____ Address: _____

City: _____ State: _____ Zip Code: _____

Email Address: _____

Please bill my (Check one): ☐ Visa ☐ MasterCard ☐ American Express

Name On Credit Card: _____

Credit Card Number: _____ Expiration Date: _____

Credit Card Billing Address: _____

Signature: _____

* Individuals are eligible to register at the $525 per person Quantity Discount Rate when five or more individuals from the same organization are paid registrants for this Professional Engineer Refresher Course. If this is the case, please list below the names and email addresses of the other individuals from that organization who are attending this course. Complete and attach an additional registration form if more than five individuals from the same organization are registering.

_____ _____

_____ _____

Course attendees may visit http://bit.ly/PEREF_Materials to order copies of *Civil Engineering Reference Manual for the PE Exam* and *Practice Problems for the Civil Engineering PE Exam: A Companion to the Civil Engineering Reference Manual* at a discount.

Supported by The Engineering Center Education Trust staff

Annual Networking and Billiards Tournament

Thursday, February 26th, 2015

Boston Beer Works, 112 Canal St, Boston, MA (near North Station)
Times: 5:30 PM to 6:00 PM Social/Registration; 6:00 PM to 9:00 PM Billiards

Join YMG for our annual billiards tournament at Boston Beer Works. Participants will compete in random teams of 2 for a grand prize of 2 pairs of Red Sox tickets for the winning team, plus prizes for 2nd and 3rd place winners. Free appetizers and a cash bar included in registration.

Registration Deadline: Friday, February 20, 2015

Registration Fees
Members: $20
Non-Members: $25
Students: $15

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/YMG_Billards2015. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after February 20, 2015 and no-shows will be billed.

BSCES
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American Society of Civil Engineers

G-I
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GEO-INSTITUTE
Boston Chapter

Development of a Versatile, Low Powered Machine to Excavate Frozen Regolith on the Moon for Civil and Mining Applications

Jamal Rostami, PhD, PE

Centennial Chair of Carrier Development in Mining, Pennsylvania State University

Thursday, March 5, 2015

Revere Hotel Boston, 200 Stuart Street, Boston, MA 02116
5:30 PM Social/Registration; 6:30 PM Dinner and Program

Development of permanent human bases on the Moon requires self-sustaining systems. This entails production and processing of limited amounts of raw material on the Moon. The most valuable material on the moon is water, which is assumed to be locked in frozen regolith. Any mining and construction activities on the Moon can only be performed by a robust excavation machine that can excavate a variety of material from loose surface regolith to consolidated (frozen) regolith with embedded rocks in the mixture. Meanwhile, limited amount of information on lunar regolith is available to develop and optimize a machine for given lunar ground conditions. Therefore, any excavator designed for use on the lunar surface should have the ability to adapt to a wide range of operating conditions. This presentation discusses the background of excavation activities required for establishing a base on the moon as well as discussion of the properties of the regolith samples obtained from the moon during Apollo missions. Also, a brief review of a series of tests performed on frozen regolith to characterize the material and evaluate its strength and cuttability will be offered. A prototype, cutterhead, for the lunar excavator was built and tested at the Kennametal facility in Latrobe, PA. This presentation discusses the results of initial full scale tests of a prototype cutterhead in relevant materials. A brief review of anticipated production rates under various assumed ground conditions will also be presented.

Dr. Rostami is currently an associate professor and Centennial Chair of Carrier Development in Mining at the department of Energy and Mineral Engineering, at the Pennsylvania State University (PSU). He has over 25 years of experience in design, management, research, and teaching in the field of mining, tunneling, and underground construction. Dr. Rostami is a registered Professional Engineer in Maryland, Pennsylvania, and Virginia. He has published over 40 peer reviewed journal publications and 130 conference papers and many technical reports. Dr. Rostami was named the recipient 2014 of the Pittsburgh Coal Mining Institute of America's 2014 Stephen McCann Memorial Educational Excellence Award.

Registration Deadline: Friday, February 27, 2015

$80 Members, $100 Non-Members
$70 Public Sector Members, $80 Public Sector Non-Members
$60 Senior Members (65+), $60 Student Members

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/COPRI030515Reg. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after February 27, 2015 and no-shows will be billed.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 1.0 Professional Development Hours (PDH)

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American Society of Civil Engineers

COPRI
COASTS, OCEANS, PORTS & RIVERS INSTITUTE
Boston Chapter

Mooring of Ships to Piers and Wharves
ASCE MOP 129

John W. Gaythwaite, PE, D.PE, D.CE
Chairman, Mooring Analysis Task Committee, COPRI, ASCE

Wednesday, March 11, 2015

The Chateau, 404 Providence Highway (Rte 1), Norwood, MA
5:30 PM Registration; 6:30 PM Dinner; 7:00 PM Presentation

John Gaythwaite currently chairs the ASCE/COPRI Mooring Analysis Task Committee that developed MOP 129 and served as its editor. Mr. Gaythwaite will discuss the development of MOP 129 and how the manual is intended to be applied to mooring analysis and safe, efficient, fixed-mooring practice. Manual of Practice (MOP) 129 – Mooring of Ships to Piers and Wharves provides guidelines for the determination of safe mooring design practices for vessels at fixed piers and wharves in ports and harbors. Today's larger, complex ships, with greater wind exposure and deeper drafts, pose particular mooring challenges to designers, captains, and pilots. Costly mooring incidents have emphasized the need for better understanding of mooring design principles, and no single building code or standard specifically addresses the design of berthing and mooring facilities. This manual provides the necessary background to assure that designed structures are sound, adequate, and provide a safe berth for the types of vessels to be accommodated.

Registration Deadline: Wednesday, March 4, 2015

$55 Members, $45 Public Sector Members
$65 Non-Members, $55 Public Sector Non-Members
$25 Students, $45 Seniors

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/BS_ASCEMOP031115. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after March 4, 2015 and no-shows will be billed.

BSCES
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SEI ASCE
STRUCTURAL ENGINEERING INSTITUTE
Boston Chapter

Building Information Modeling (BIM) in Structural Engineering Practice – ASCE Webinar

N. O. Nawari, PhD, PE, Assistant Professor, School of Architecture, College of Design, Construction & Planning, University of Florida
Lisa Willard, PE, Vice President, SE Solutions, LLC

Tuesday, March 17, 2015

Aldrich Center at TEC, One Walnut Street, Boston, MA
2:30 PM Registration; 3:00 PM Webinar

The structural engineering profession is standing on the brink of a new technology that will revolutionize the way structures are designed and constructed. The Building Information Model provides the 3-D objects library of the physical building. In essence, BIM is a way to construct a building virtually, before building it in the real world. Unlike 2D CAD drawings, when you make a revision or change in any element in the model you have to change it only once and all the views and details in the model are automatically updated. Not only does this feature make revising a structural design almost effortless, it virtually eliminates the possibilities of errors associated with uncoordinated drawings.

This timely webinar will focus on how structural engineers can benefit from this emerging technology by reviewing the BIM concept, discussing how BIM will affect your business, evaluating current BIM technology, and exploring critical issues for best business practices in BIM technology. Along with discussing the current maturity level of BIM, reviewing the state of the industry as it relates to adoption rates, discussing the technical implementation process, and exploring legal issues and risks involved with BIM.

Registration Deadline: Tuesday, March 10, 2015

$15 Members, $20 Non-Members,
$15 Public Sector Members and Public Sector Non-Members
$10 Student Members and Senior Members (65+)

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/SEI_BMI_031715. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. There is a 30 person limit for this event. Cancellations received after March 10, 2015 and no-shows will be billed.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 1.5 Professional Development Hours (PDH)

Supported by the staff of The Engineering Center Education Trust

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

Program Committee

FHWA-NHI-130053
Bridge Inspection Refresher Training

Tuesday, March 24, 2015 – Thursday, March 26, 2015

Hilton Garden Inn Worcester, 35 Major Taylor Boulevard, Worcester, MA
Tuesday through Thursday, 8:00AM – 4:30PM

The major goals of this course are to refresh the skills of practicing bridge inspectors in fundamental visual inspection techniques; review the background knowledge necessary to understand how bridges function; communicate issues of national significance relative to the nations' bridge infrastructures; re-establish proper condition and appraisal rating practices; and review the professional obligations of bridge inspectors. This course is based on the "Bridge Inspector's Reference Manual," 2002 (updated 2006), with reference to the AASHTO Manual as defined by the National Bridge Inspection Standards regulation.

Registration Deadline: Tuesday, February 10, 2015

Registration Fees: $1,250 Members, $1,500 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: Attendance for this program is limited to 30 participants. Individuals who attempt to register after the course is closed will be added to a waiting list. Reservations will be accepted on a first-come first-served paid reservation basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/NHIBridgeInspection32415. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. There are no refunds for no shows or for registrants who cancel after February 10, 2015.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 1.8 Continuing Education Units (CEU)

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BSCES
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American Society of Civil Engineers

Program Committee

NHI

massDOT
Massachusetts Department of Transportation
Highway Division

FHWA-NHI-130078
Fracture Critical Inspection Techniques for Steel Bridges

Tuesday, March 31, 2015 – Friday, April 3, 2015

The Beechwood Hotel, 363 Plantation Street, Worcester, MA
Tuesday through Thursday 8:00AM – 4:30PM
Friday 8:00AM – 12:00PM

The course curriculum for this training reflects current practices, while addressing new and emerging technologies available to bridge inspectors. In addition, the course features exemplary training; hands-on workshops for popular types of nondestructive evaluation (NDE) equipment; and a case study of an inspection plan for a fracture critical bridge.

Please note: To take this course participants must show that they have passed the pre-requisite course, FHWA-NHI-130055, *Safety Inspection of In-Service Bridges* or possess equivalent field experience relative to bridges. Participants also should have a thorough understanding of bridge mechanics and bridge safety inspection procedures as required by the National Bridge Inspection Standards. A FHWA/NHI certification of completion with the participant name on it will be required to be presented to BSCES preferably at time of registration or no later than Friday, March 13, 2015. Please forward your prerequisite certificate in the form of a PDF document to bsces@engineers.org. Please visit the NHI website at www.nhi.fhwa.dot.gov or contact them at 703/235-0500 for additional information on the prerequisite course requirements.

For more detailed information about this course click here.

Registration Deadline: Friday, March 13, 2015

Registration Fees: $960 Members, $1,160 Non-Members
Registration fee includes course materials, continental breakfast, breaks, and lunch.

Information/Registration: MassDOT has given BSCES the opportunity to fill six seats in this course. Reservations will be accepted on a first-come first-served paid reservation basis. Payment must be received with registration to secure a slot. Register to attend this course and pay by credit card online at http://bit.ly/BS_NHIFractures2015. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. There are no refunds for no shows or for registrants who cancel after March 13, 2015.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

This presentation provides 2.5 Continuing Education Units (CEU)

Supported by the staff of The Engineering Center Education Trust

BSCES
Boston Society of Civil Engineers Section
American Society of Civil Engineers

EWRI
ASCE
ENVIRONMENTAL & WATER RESOURCES INSTITUTE
Boston Chapter

Annual John R. Freeman Lecture: Shale Gas Development: A Big Environmental Experiment?

John Cherry

Professor Emeritus, University of Waterloo and Adjunct Professor, University of Guelph

Thursday, April 9, 2015

MIT's Tang Center (E51), 70 Memorial Drive, Cambridge, MA

6:00 PM Reception; 7:00 PM Lecture

Hydraulic fracturing ('fracking') for shale gas/oil has grown rapidly in the past dozen years in the US and Western Canada. In many other regions globally, where government and industry would like to see rapid development, public resistance is restrictive. This may be attributed in large part to the lack of a social license, an unexpected public response to a grand new energy source resulting from impressive technology innovations over two decades of perseverance. Concerns about shale gas include: contamination of groundwater and surface water, water resource depletion, human health, community deterioration, ecological and landscape alterations and greenhouse gas emissions. Some of the environmental uncertainties can be minimized by best practices and more demanding regulations with inspection and penalties. But the most important questions cannot be answered with strong scientific evidence because the needed research and monitoring simply has not been done. The largest uncertainties concern stray gas (methane) escape into groundwater and the atmosphere, a result of inadequate cement seals in the gas wells, and a long-standing problem for all types of oil and gas wells. Recently there has been increased engagement by the scientific community in debating the issues, but without much agreement, supporting claims by some that shale gas development is an immense experiment on the environment. With emphasis on groundwater issues, this talk examines the nature of the shale gas debate and the claim that shale gas is an environmental experiment. Examination of evidence includes expert panel reports from governments in the US, Canada, Europe and Australia, and published literature ranging from propaganda, to maturing but largely unreproducible science.

Experiment: "A procedure tried on the chance of success or to test a hypothesis" The Oxford Reference Dictionary, 1986.

Registration Deadline: Friday, April 3, 2015

Registration Fees: Free to all Members and Non-Members

Information/Registration:

Register to attend this lecture online at https://www.surveymonkey.com/s/HX3HRRR.

Strike Up a Conversation: Bowling/Networking Event

Co-Sponsored by

BSCES Construction Institute *and*

Utility Contractors of New England (UCANE)

Day, April 17, 2015

Lanes & Games, 195 Concord Turnpike, Route 2E, Cambridge, MA
5:30 PM Registration/Social; 6:30 PM Dinner; 7:00 PM Presentation

Members of the Construction Institute Boston Chapter and Utility Contractors of New England invite you to join them for a fun-filled evening of bowling and networking. Construct new relationships and demolish pins as pre-mixed teams compete for what we hope to be the first annual Strike Up a Conversation Bowling Title. Registration fee covers entrance, two games of bowling, shoe rental and buffet-style dinner. Cash bar available, and the networking is up to you!

All are welcome but there are a limited number of spaces available, so register early!

Registration Deadline: Monday, April 13, 2015

$45 Members, $50 Non-Members
$35 Public Sector Members, $45 Public Sector Non-Members
$25 Senior Members (65+), Student Members

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/BS_CI_041715. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after April 13, 2015 and no-shows will be billed.

BSCES
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American Society of Civil Engineers

Engineering Management Group (EMG)

Developing a *Wynn* Win: Onsite Development of the Wynn Everett Resort

Chris Gordon, PE

President, Dirigo Group

Thursday, April 30, 2015

The Revere Hotel, Boston Common, 200 Stuart Street Boston, MA
5:30 PM Social/Registration; 6:00 PM Meal; 6:30 PM Presentation

The Wynn Everett Resort is the largest private development in Massachusetts history. Boasting luxury hotel rooms, lavish gaming areas and a waterfront boardwalk featuring retail stores and restaurants, there certainly wasn't any rolling the dice when it came to planning this massive undertaking. Come and listen to Chris Gordon of the Dirigo Group discuss the development of the Wynn Everett, including an overview of the $1.8B five star resort, the opportunity to clean up one of the most contaminated sites in the region and insight into the project delivery strategy and schedule. In his role as Development Manager for the Wynn Everett project, Chris Gordon is responsible for all aspects of onsite development. Mr. Gordon has nearly 30 years of experience managing complex capital projects and has consulted on projects across the world. Don't fold on this opportunity, register early as space is limited.

Registration Deadline: Friday, April 24, 2015

$75 Members, $85 Non-Members
$65 Public Sector Members, $75 Public Sector Non-Members
$55 Senior Members (65+), Students

Information/Registration:

Register to attend this meeting and pay by credit card online at http://bit.ly/EMG_Wynn33015. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a BSCES Event Registration Form and follow the submission instructions. Cancellations received after April 24, 2015 and no-shows will be billed.

February 2015

Announcement of the 2015 $5,000 Simpson Gumpertz & Heger Scholarship

To Prospective Applicants:

The principals of Simpson Gumpertz & Heger Inc. (SGH) have established the Simpson Gumpertz & Heger Scholarship with the Boston Society of Civil Engineers Section/American Society of Civil Engineers (BSCES) to encourage undergraduate college students who strive for excellence and who aspire to a career in civil engineering. It has been our experience as a firm and as individuals that the field of civil engineering provides technically challenging assignments while offering an opportunity to make a significant contribution to society.

SGH supports the civil engineering profession and wishes to encourage gifted students in the pursuit of their careers. We welcome your participation in this scholarship opportunity.

What is the Simpson Gumpertz & Heger Scholarship?

SGH established this scholarship with BSCES in 1997 to encourage students in the pursuit of civil engineering as a profession. In 2015, the scholarship amount will be $5,000 in the form of a check presented to the scholarship winner.

Who may apply?

All undergraduate-level civil engineering majors who are members of an ASCE Student Chapter or Club in Massachusetts, who have completed a minimum of two-and-one-half years of a four-year program (or the equivalent portion of a five-year or part-time program), and who expect to complete their undergraduate degree in May 2015 or later are eligible to apply for this scholarship.

Review of the Application

Applications will be judged with equal weight given to three categories: professional presentation in the letter of introduction and resume, quality of ideas expressed and clarity of communication demonstrated in the one-page essay, and capabilities reflected in college/university transcript(s).

A three-person committee consisting of two representatives of BSCES and one Principal of SGH will judge applications. Decisions of the committee will be final. Leading candidates may be asked to meet with members of the review committee. BSCES reserves the option of publishing applicants' essays in *BSCES News* and/or *Civil Engineering Practice*.

Presentation of the Award

The recipient of the scholarship will be announced at the 2015 BSCES Student Night the evening of Tuesday, 7 April 2015, at University of Massachusetts Lowell. The award recipient will be notified in advance of the meeting and will be invited to attend Student Night as a guest of SGH.

Simpson Gumpertz & Heger Scholarship
2015 APPLICATION REQUIREMENTS

How to apply

Students interested in applying for the Simpson Gumpertz & Heger Scholarship are asked to submit the following:

- A one-page letter introducing the applicant and summarizing their qualifications.

- A resume demonstrating the applicant's academic record, professional employment (in engineering or related fields), other employment, professional activities (membership and participation in professional organizations such as ASCE, SWE, EWB, etc.), and personal items of interest.

- A one-page essay demonstrating the applicant's writing ability and expressing original thought. The topic for the 2015 essay is the following:

  In the information age, our profession is constantly embracing new technologies, including devices and software. Current civil engineering students are learning with tools that were not available just a decade ago. Tablet computers have changed field data collection, and building information modeling now allows stakeholders in projects to share and review information in real time as designs progress toward the built environment.

  Choose an emerging device or technology that you think will have significant influence on the civil engineering profession in the next ten years. What impact will the device or technology have on the profession? Will the role of the engineer change? Consider both positive and negative impacts and changes. Develop an argument and support your conclusions.

- Official college and/or university transcript(s).

Send hard copy applications to:

Simpson Gumpertz & Heger Scholarship Committee
Boston Society of Civil Engineers Section/ASCE
The Engineering Center
One Walnut Street
Boston, MA 02108-3616

For more information, please contact:

Brent Bass, P.E. (MA)
Simpson Gumpertz & Heger Inc.
781-907-9000 or bjbass@sgh.com

Applications can be submitted by hard copy to the address above or e-mailed (PDF format) to Brent Bass at bjbass@sgh.com with the subject "SGH Scholarship". Applications must be received by 5:00 p.m. on Thursday, 26 March 2015. If submitting electronically, a hard copy application must also be received at the above address no later than 5:00 p.m. on Monday, 30 March 2015. Applications will not be returned.

BSCES
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TRANSPORTATION & DEVELOPMENT INSTITUTE
Boston Chapter

2015 Ernest A. Herzog Award Call For Papers

Background:

Ernest A. Herzog was a nationally recognized civil engineer. During his career, he served a term as president of the Boston Society of Civil Engineers Section and was also a fellow of the American Society of Civil Engineers (1987).

Mr. Herzog began his career with Spencer, White and Prentis at the atomic energy facility in Oak Ridge, Tennessee. After World War II, he transferred to a Boston-based firm named Chas. T. Main Inc. Eventually, Mr Herzog joined the firm of Alonzo B. Reed Inc. where he progressed into the highest role of president and remained in that role for 20 years thereafter.

While in the transportation field, Mr. Herzog was actively involved in the design and construction of the monorail used at the 1962 Seattle World's Fair. This monorail, which is still in use today, has served as the prototype for several other monorail systems including those at Disney Land in Anaheim, California, Disney World in Orlando, Florida, and one in Tokyo, Japan. In fact, Mr. Herzog was a strong and persistent advocate of a monorail system to serve Boston's south shore communities to relieve the traffic congestion on the Southeast Expressway.

In 1973, Mr. Herzog co-founded Herzog-Hart, a full-service engineering firm that specializes in the design and construction of research and production facilities for the pharmaceutical and process industries.

Mr. Herzog was well known for his generous support of and encouragement to young college students and young professionals just at the onset of their careers. He lectured at Tufts University, Dartmouth College, University of Massachusetts, and Northeastern University. He also wrote and published numerous papers, particularly concerning the effects of transportation systems on society.

In memory of Mr. Herzog's commendable career achievements, the Ernest A. Herzog Award was established to promote an awareness of and to recognize innovative improvements to infrastructure.

Paper Guidelines:

Submitted papers shall present an infrastructure project, innovation, or idea in which the author was actively involved in as an owner, advocate, engineer, or end-user. The paper must be well written and address specific benefits to current professional practices, lifestyle, and/or sustainability through the application of existing or innovative technologies or methods. Areas of application may include design, construction, operation, maintenance, management or financing of infrastructure components or systems.

Rules:

A. The paper should be original and not be less than 2,000 words and not more than 6,000 words. The paper should clearly describe the project, innovation, or idea and highlight benefits to the current engineering and construction practices. Graphic material including photographs should be included to highlight specific areas of the project. The paper may have been previously published in a journal.

B. Three copies of the papers shall be submitted to:
BSCES/ASCE
The Engineering Center
One Walnut Street
Boston, MA 02108-3616
Attn: TD&I Boston Chapter Herzog Award Committee

An electronic copy should also be sent to clayschofield@comcast.net

C. The recipient will be invited to give a short presentation on the paper at the BSCES Online Bridge Contest Awards Celebration on May 19, 2015. Original papers may be submitted (with authors permission) for publication in the BSCES journal and for BSCES annual award. (celebrated in the fall of 2015).

Application Deadline:
May 1, 2015

Review of Applications:
The BSCES Herzog Award Competition Subcommittee.

Evaluation Criteria:
Topics for the papers shall be related to one or more of the 17 infrastructure systems defined in ASCE's infrastructure report card (see http://www.infrastructurereportcard.org/). Papers are evaluated by the reviewers on the basis of the following criteria:

A. Technical writing; organization, graphics, grammar, and technical accuracy (30%)
B. Benefits to the current design, construction, operation, maintenance, or financing practices of infrastructure (20%)
C. Innovation; uniqueness of concepts (10%),
D. Benefits to lifestyle of the general public or other end-users (20%)
E. Sustainability, life-cycle cost benefits, or cost effectiveness (20%)

Award:
The award presentation will be made at the BSCES Transportation and Development Institute Awards Celebration on May 19, 2015. The recipient will receive a $1,000 award and a memorable plaque.

SUSTAINABILITY IN CIVIL ENGINEERING AWARD
SUBMISSION INFORMATION

Purpose

The purpose of the Sustainability in Civil Engineering Award is to recognize Massachusetts civil engineering infrastructure projects that embody the principles of sustainability espoused by the Committee, ASCE, and the Institute for Sustainable Infrastructure (ISI). Such projects prominently and creatively consider the five sustainability indicators of quality of life, leadership, resource allocation, natural world, and climate risk.

The award will be offered annually and is to be administered by the BSCES Awards Committee. The BSCES Committee on Sustainability will receive entries, judge the entries and select the winning project. The award will be issued to the project owner.

Eligibility

To be eligible, a project must demonstrate adherence to the principles of economic, social and environmental sustainability as identified by ASCE/ ISI criteria for sustainable infrastructure.

The project must have been constructed in Massachusetts within the last three years.

Rules for Submission

1 Entries for the award must include:
   - The completed Entry Form below
   - A printout of the Envision™ project assessment scoring table from the ISI website completed by an Envision Sustainable Professional (ENV SP).

2 Entries shall be submitted to the BSCES Committee on Sustainability no later than May 1 of each award year with an anticipated award given at the Annual Awards Dinner event in the fall. Entries may be submitted electronically to aellard@engineers.org, or by mail to

   Audrine Ellard
   Boston Society of Civil Engineers Section
   The Engineering Center
   One Walnut Street
   Boston, MA 02108-3616

3 The BSCES Committee on Sustainability reserves the right to request additional information for any or all entries

Evaluation Criteria

Projects will be considered based on their submitted Envision rating. Primary consideration will be given to project Envision ratings. Secondary consideration will be given to the following criteria:

1. The extent to which innovative design or construction methods improve economic, social and environmental sustainability;
2. The ability to apply the project methods to future developments in sustainability; and
3. The degree to which the project met the expectations of the client.

The BSCES Committee on Sustainability will receive the nominations and forward entries which meet the rules for submission to a separate judging panel. The judging panel will consist of 4-5 independent and qualified reviewers who have no conflicting interest in the selection of a winner. The basis of award by the panel is to select the project which receives a high Envision rating, as well as exemplifies achievement in the secondary criteria identified. The Committee on Sustainability will submit the selected project winner to the Awards Committee to be included in the annual BSCES awards dinner ceremony.

SUSTAINABILITY IN CIVIL ENGINEERING AWARD
ENTRY FORM

PROJECT INFORMATION

PROJECT NAME: _____

PROJECT LOCATION _____

DATE OF COMPLETION _____

PROJECT OWNER
- Agency / Corporation: _____
- Contact Name: _____
- Contact Phone Number: _____
- Contact Email: _____

PROJECT ENGINEER/DESIGNER (list design team members if multiple companies involved)
- Company Name: _____
- Contact Name: _____
- Contact Phone Number: _____
- Contact Email: _____

BSCES NOMINATING MEMBER (if applicable, not required)
- Company Name: _____
- Contact Name: _____
- Contact Phone Number: _____
- Contact Email: _____

ENVISION™ PROJECT RATING
Envision Sustainable Professional (ENV SP)
- Company Name: _____
- Contact Name: _____
- Contact Phone Number: _____
- Contact Email: _____

PROJECT MERITS

Please provide a brief description of the project.

Please provide a brief statement of how the project met the client's needs.

Please describe the extent to which the projects innovative design exemplifies the economic, social and environmental principles of sustainability as described by the Institute for Sustainable Infrastructure.
(Provide a separate attachment consisting of 500 words or less).

Please describe the specific elements of the project that contribute to sustainability and the anticipated advantages of these elements compared with traditional design/construction techniques. Photographs are encouraged.
(Provide a separate attachment consisting of 500 words or less).

The ENV sustainability professional (ENV SP) listed in the project information form above shall complete a sustainability scoring of the project using the ISI Envision Rating tool available through the ISI website. An official independent review or verification by ISI is not required; however, a completed tabular summary of all the Envision credits shall be submitted as part of this application and will be the primary basis for award selection.

BSCES
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ASCE
TRANSPORTATION & DEVELOPMENT INSTITUTE
Boston Chapter

Bertram Berger Young Engineer Award
Call for Nominations

The BSCES Transportation and Development Institute Boston Chapter is now accepting nominations for the **Bertram Berger Young Engineer Award**. The 2015 Annual Bertram Berger Young Engineer Award serves to recognize an outstanding younger member of the Boston Society of Civil Engineers for his or her professional achievements and service to the community. The successful candidate should (1) be less than 35 years old on May 1, 2015, (2) have attained exemplary professional achievements as a young engineer, (3) demonstrate leadership in the practice of civil engineering with emphasis on transportation, (4) enhance the stature of civil engineers within the community, (5) be active with professional organizations such as BSCES or similar, and (6) be a registered, or soon-to-be registered, professional engineer.

In addition to recognition within the engineering community, the Award winner will receive a **$2,500 stipend** to be used for continuing education and/or professional development. The Award winner will be notified by the end of May, 2015 and will be presented with the Award at the upcoming Annual Bertram Berger Seminar and Luncheon on June 16, 2015.

To nominate an individual for the Bertram Berger Young Engineer Award, please submit an up to three (3) page narrative statement describing how the nominee meets the above described criteria. Nominations will be accepted until 5:00 p.m. on **Friday, May 1, 2015** and should be submitted via mail or e-mail to:

Mr. Kurt Jelinek, PE
Nobis Engineering, Inc.
585 Middlesex Street, Lowell, MA 01851,
e-mail: kjelinek@nobiseng.com,
phone: (978) 683-0966